

WHAT IS CLAIMED IS:

1. An energy absorber (180) for an instrument panel assembly (10) comprising an elongate instrument panel beam structure (14), and a knee bolster (116), said energy absorber comprising a thermoplastic structure configured to attach to the instrument panel beam structure, said energy absorber thermoplastic structure comprising:

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a plurality of sides (182); and

a plurality of web members (190), at least some web members extending between said plurality of sides.

2. An energy absorber (180) in accordance with Claim 1 wherein said energy absorber thermoplastic structure comprises at least one position tab (192).

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3. An energy absorber (180) in accordance with Claim 1 wherein said plurality of sides (182) comprise a substantially M-shaped configuration or a substantially W-shaped configuration.

4. An energy absorber (180) in accordance with Claim 1 wherein said plurality of web members (190) comprise a honeycomb configuration.

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5. An energy absorber (180) for an instrument panel assembly (10), said energy absorber comprising a thermoplastic structure comprising:

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a plurality of sides (182); and

a plurality of web members (190), said plurality of web members comprising a honeycomb configuration.

6. An energy absorber (180) in accordance with Claim 5 wherein said thermoplastic structure comprises at least one position tab (192).

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7. An energy absorber (180) for an instrument panel assembly (10), said energy absorber comprising a thermoplastic structure comprising a plurality of sides (182), said plurality of sides comprising a substantially M-shaped configuration or a substantially W-shaped configuration.

8. An energy absorber (180) in accordance with Claim 7 further comprising a plurality of web members (190), at least some web members extending between said plurality of sides (182).

9. An energy absorber (180) in accordance with Claim 8 wherein said plurality of web members (190) comprise a honeycomb configuration.

10. An instrument panel assembly (140) comprising:
an elongate beam structure (142);
a plurality of thermoplastic energy absorbers (144) attached to said beam structure;
at least one knee bolster (116) positioned adjacent said plurality of thermoplastic energy absorbers; and
an instrument panel (90).

11. An instrument panel assembly (140) in accordance with Claim 10 wherein said plurality of thermoplastic energy absorbers (142) comprise a plurality of sides (182) and a plurality of web members (190), at least some web members extending between said plurality of sides.

12. An instrument panel assembly (140) in accordance with Claim 11 wherein said plurality of web members (190) comprise a honeycomb configuration.

13. An instrument panel assembly (140) in accordance with Claim 10 further comprising a center stack (146) coupled to said beam structure (142).

14. An instrument panel assembly (140) in accordance with Claim 13 wherein said center stack (146) comprises an extruded thermoplastic center stack sized to receive vehicle system controls.

15. An instrument panel assembly (140) in accordance with Claim 10 wherein said beam structure (142) comprises at least one longitudinal channel (158).

16. An instrument panel assembly (140) in accordance with Claim 15 wherein said energy absorbers (144) comprise at least one position tab (152) sized and

shaped to be received in said at least one longitudinal channel (158) of said beam structure (142).

17. An instrument panel assembly (140) in accordance with Claim 15 wherein said beam structure (142) comprises a continuous profile thermoplastic beam structure.

18. An instrument panel assembly (140) in accordance with Claim 10 wherein said plurality of energy absorbers (144) coupled to said beam structure by at least one of adhesive bonding, heat bonding, vibration welding and fasteners.

19. An instrument panel assembly (140) in accordance with Claim 15 wherein said beam structure comprises (142) an extruded or roll-formed metal beam structure.

20. An instrument panel assembly (140) comprising:

an elongate continuous profile thermoplastic beam structure (142);

15 a plurality of thermoplastic energy absorbers (180) attached to said beam structure, each said energy absorber comprising a plurality of sides (182) and a plurality of web members (190), at least some web members extending between said plurality of sides;

at least one knee bolster (116) positioned adjacent said plurality of thermoplastic energy absorbers; and

20 an instrument panel (90) .

21. An instrument panel assembly (140) in accordance with Claim 20 wherein said continuous profile thermoplastic beam structure (142) comprises at least one longitudinal channel (158).

25 22. An instrument panel assembly (140) in accordance with Claim 21 wherein said energy absorbers (144) comprise at least one position tab (152) sized and shaped to be received in said at least one longitudinal channel (158) of said continuous profile thermoplastic beam structure (142).

23. An instrument panel assembly (140) in accordance with Claim 21 further comprising an extruded thermoplastic center stack (18) coupled to said continuous profile thermoplastic beam structure (142).

24. An instrument panel assembly in accordance with Claim 23 wherein
5 said center stack (18) comprises at least one position tab (40) sized and shaped to be received in said longitudinal channel (158) of said continuous profile thermoplastic beam structure (142).

25. An instrument panel assembly (140) in accordance with Claim 20 wherein said plurality of extruded thermoplastic energy absorbers (144) are coupled to said continuous profile thermoplastic beam structure by at least one of adhesive bonding, heat bonding, vibration welding and fasteners.
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26. An instrument panel assembly (140) in accordance with Claim 20 wherein said plurality of web members (190) comprise a honeycomb configuration.